

CLAIMS

What is claimed is:

- 1 1. A color-separating and -recombining optical system
2 comprising:
3 a light-beam separating section having a beam-
4 separating plane to separate an incident light beam
5 having a first light component, a second light
6 component, and a third light component into the first,
7 second, and third light components, respectively;
8 a first polarization beam splitter having a first
9 beam-splitting plane in which the first light component
10 is incident;
11 a second polarization beam splitter having a second
12 beam-splitting plane in which the second and third light
13 components are incident;
14 A light-beam recombining section having a beam-
15 recombining plane to recombine the first light component
16 emitted from the first polarization beam splitter and
17 the second and third light components emitted from the
18 second polarization beam splitter, wherein the beam-
19 separating plane, the first and second beam-splitting
20 planes and the beam-recombining plane intersect each
21 other like a character-"X"; and
22 a light blockage provided in the vicinity of an
23 intersection of the beam-separating plane, the first and
24 second beam-splitting planes and the beam-recombining
25 plane, the light blockage preventing light components of
26 the light beam incident in the light-beam separating
27 section from being incident in the light-beam
28 recombining section without being incident in the first
29 or the second polarization beam splitter.
- 1 2. The color-separating and -recombining optical system
2 according to claim 1, wherein the light-beam separating

3 section has a first corner and the light-beam
4 recombining section has a second corner, the first and
5 second corners being cut out to be flat to face each
6 other as the light blockage.

1 3. The color-separating and -recombining optical system
2 according to claim 1, wherein the first or the second
3 polarization beam splitter is smaller than the light-
4 beam recombining section, the light blockage being
5 provided between the light-beam recombining section and
6 the first or the second polarization beam splitter.

1 4. The color-separating and -recombining optical system
2 according to claim 1, wherein the first or the second
3 polarization beam splitter is smaller than the light-
4 beam recombining section, the light blockage being
5 provided in an optical component provided between the
6 light-beam recombining section and the first or the
7 second polarization beam splitter.

1 5. The color-separating and -recombining optical system
2 comprising:

3 a light-beam separating section having a beam-
4 separating plane to separate an incident light beam
5 having a first light component, a second light
6 component, and a third light component into the first,
7 second, and third light components, respectively;

8 a first polarization beam splitter having a first
9 beam-splitting plane in which the first light component
10 is incident;

11 a second polarization beam splitter having a second
12 beam-splitting plane in which the second and third light
13 components are incident;

14 a light-beam recombining section having a beam-
15 recombining plane to recombine the first light component
16 emitted from the first polarization beam splitter and
17 the second and third light components emitted from the
18 second polarization beam splitter, wherein the beam-
19 separating plane, the first and second beam-splitting
20 planes and the beam-recombining plane intersect each
21 other like a character-"X"; and

22 a light blockage provided in the vicinity of a joint
23 portion of the light-beam recombining section and the
24 first or the second polarization beam splitter, the
25 light blockage preventing light components of the light
26 beam incident in the light-beam separating section from
27 being incident in the light-beam recombining section
28 without being incident in the first or the second
29 polarization beam splitter.

1 6. A projection display comprising:

2 a light-beam separating section having a beam-
3 separating plane to separate an incident light beam
4 having a first light component, a second light
5 component, and a third light component into the first,
6 second, and third light components, respectively;

7 a first polarization beam splitter having a first
8 beam-splitting plane in which the first light component
9 is incident;

10 a second polarization beam splitter having a second
11 beam-splitting plane in which the second and third light
12 components are incident;

13 a light-beam recombining section having a beam-
14 recombining plane to recombine the first light component
15 emitted from the first polarization beam splitter and
16 the second and third light components emitted from the
17 second polarization beam splitter, wherein the beam-

18 separating plane, the first and second beam-splitting
19 planes and the beam-recombining plane intersect each
20 other like a character-"X"; and

21 a light blockage provided in the vicinity of an
22 intersection of the beam-separating plane, the first and
23 second beam-splitting planes and the beam-recombining
24 plane, the light blockage preventing light components of
25 the light beam incident in the light-beam separating
26 section from being incident in the light-beam
27 recombining section without being incident in the first
28 or the second polarization beam splitter.

1 7. A projection display comprising:

2 a light-beam separating section having a beam-
3 separating plane to separate an incident light beam
4 having a first light component, a second light
5 component, and a third light component into the first,
6 second, and third light components, respectively;

7 a first polarization beam splitter having a first
8 beam-splitting plane in which the first light component
9 is incident;

10 a second polarization beam splitter having a second
11 beam-splitting plane in which the second and third light
12 components are incident;

13 a light-beam recombining section having a beam-
14 recombining plane to recombine the first light component
15 emitted from the first polarization beam splitter and
16 the second and third light components emitted from the
17 second polarization beam splitter, wherein the beam-
18 separating plane, the first and second beam-splitting
19 planes and the beam-recombining plane intersect each
20 other like a character-"X"; and

21 a light blockage provided in the vicinity of a joint
22 portion of the light-beam recombining section and the

23 first or the second polarization beam splitter, the
24 light blockage preventing light components of the light
25 beam incident in the light-beam separating section from
26 being incident in the light-beam recombining section
27 without being incident in the first or the second
28 polarization beam splitter.